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(54) **Drawer**

(57) The present invention refers to a drawer whose lateral (13, 15) and rear (14) walls are formed from a single laminated piece that includes at least two weakened areas (11, 12) defining the bending regions for for-

mation of said lateral (13, 15) and rear (14) walls. According to the present invention, the need to assemble the rear wall to the lateral walls is eliminated, thus saving time of assembly and eliminating the use of means of fastening, like bolts, nuts, pins, pegs, etc.

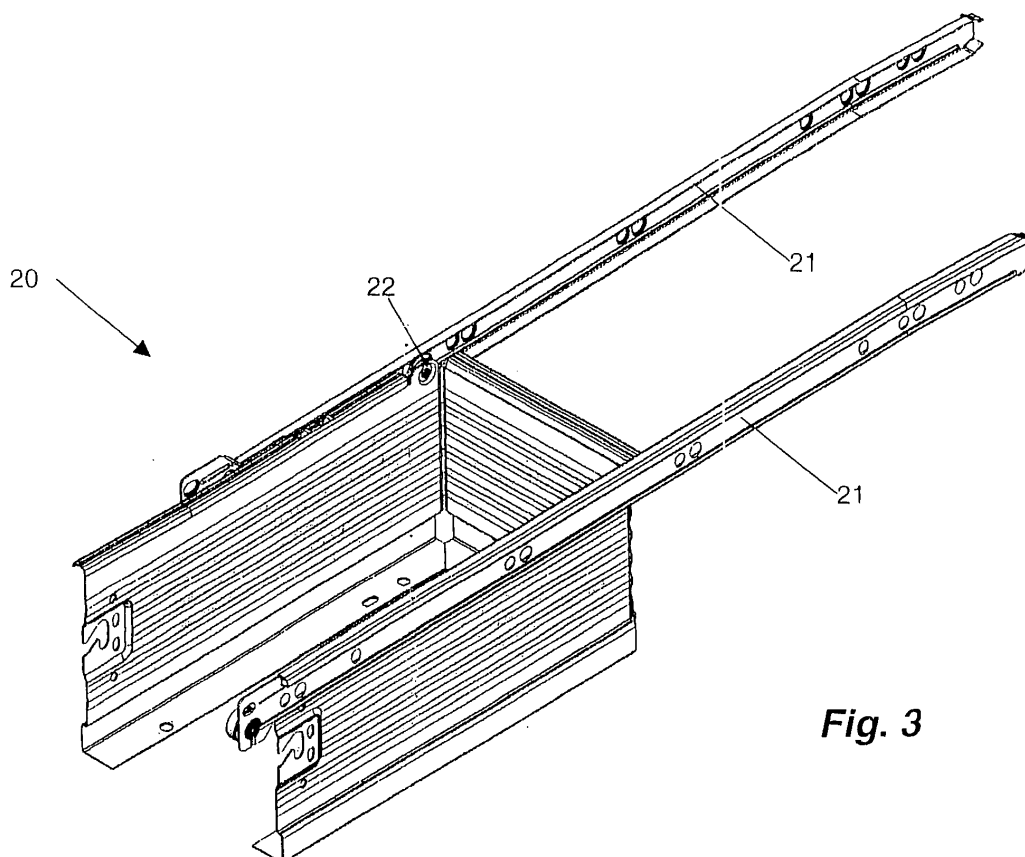


Fig. 3

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Description

Field of the Invention

[0001] The present invention generally refers to a drawer that is to be fitted in the rails of a chest of drawers. More specifically, the present invention refers to a drawer to be fitted in the rails of a chest of drawers, lateral and rear walls of which are formed from a single piece, thus facilitating its assembly.

Background of the Invention

[0002] Prior art drawers have metallic lateral walls, which are usually shaped to fit directly in the rails of a chest of drawers. These drawers are different from other common drawers because it does not require the use of rails directly in the drawers, but only in the chest of drawers.

[0003] This prior art drawer has its lateral walls separated from each other, usually made of metallic material like carbon steel, to fit directly in the rails of the chests of drawers. Thus, the other walls of the drawers, like the rear wall, front wall and base, are separate from the lateral walls and are usually made of some other material, like wood, plywood, etc.

[0004] These drawers represent an advantage over ordinary drawers since the lateral walls shaped to fit directly in the rails assembled in the chest of drawers eliminate a pair of rails that would be assembled in the lateral walls of the drawer. This represents a significant advantage of time in drawer assembly, as well as an economic advantage as it does not require the use of one or more pair of rails.

[0005] However, the drawer walls that are separate from each other must be assembled and fixed.

[0006] This assembling and fixing operation of the lateral walls to the front, rear walls and base is very burdensome as it requires the use of devices to centralize the lateral walls of the drawer in relation to the other walls to be fixed to said lateral walls. Furthermore, one also has to use means of fastening, like bolts, pins, pegs, nuts, glue, etc, and must fasten these means to the drawer walls.

[0007] Therefore, it is desirable to reduce this time spent in the drawer's assembly when using lateral walls that fit directly in the rails of chest of drawers.

[0008] Thus, it is an object of the present invention to provide a drawer whose lateral walls and rear wall are jointly shaped from a single piece, eliminating the need for assembling at least one of the drawer walls.

[0009] Another object of the present invention is to provide a drawer whose base is assembled by fitting, eliminating the need to use means of fastening and centralizing, facilitating and reducing, as a result, the time spent in assembling a drawer.

Description of the Invention

[0010] The abovementioned objects, among others, are achieved with the present invention, which comprises a drawer whose lateral and rear walls are formed from a laminated single piece, particularly a laminated piece from a metallic blank, comprising at least two weakened areas that define bending regions for the formation of said lateral and rear walls of said drawer.

[0011] The weakened regions for bending are spaced from each other and define the width of the drawer's rear wall, such that the ductility of these weakened areas is greater than the average ductility of the drawer.

[0012] In other words, the yield stress of said weakened areas should be less than the average yield stress of the drawer walls, such that they can bend more easily in this weakened area than in other parts of the drawer walls. However, the shear stress should be such that there is no shearing of the weakened areas when bent. The weakened areas should support the bending operation without shearing. Some materials may be used to manufacture the drawer of the present invention with adequate thickness to prevent shearing of the weakened areas, such as ASTM 1020 carbon steel with thickness of 1 mm. Other metal alloys may be employed as well, such as polymeric materials, provided that the weakened areas do not shear when bent.

[0013] These weakened areas can be formed by any means known for those skilled in the art. For example, the quantity of material making up the wall plan can be reduced, forming a series of spaced openings between them, like the knurled area. Optionally, the weakened areas may be formed by reducing the thickness of the blank by electro-erosion. The weakened areas may also be formed, optionally, by corrosive chemical attack or electro-erosion, or any other adequate means.

[0014] The drawer of the present invention can also include a U-shaped channel in the lower part of said lateral and rear walls, in order to fix the drawer base to it.

[0015] In an embodiment of the present invention, the drawer walls can include in the upper part a rail profile to fit in a corresponding rail of a chest of drawers, as well as openings provided to receive grooved pulleys, required for sliding the drawer on said rail.

[0016] According to an embodiment, the lateral and rear walls of the drawer of the present invention can be grooved to increase resistance to torsion of said lateral and rear walls.

[0017] The drawer according to the present invention can also include openings provided for the use of means of fastening a front wall, as well as openings for the use of means of fastening the base of the drawer, if need be.

Brief Description of the Drawings

[0018] The improvements and purposes of the present invention will become clear to those skilled in the art from the description of a particular embodiment given below,

making reference to the annexed figures, given only for illustration of the particular embodiments of the invention. The figures are schematic and their dimensions and proportions may not correspond to reality, once they are only meant to illustrate the present invention didactically, without imposing any limitations except those contained in the claims presented further on, being that:

Figure 1 is a perspective view of the single piece from which the drawer of the present invention is formed;

Figure 2 is a perspective view of the drawer of the present invention with the lateral walls bent; and

Figure 3 is a perspective view of the drawer of the present invention fixed in two rails of a chest of drawers.

Description of a Particular Embodiment

[0019] Figure 1 shows the single piece (1) from which the drawer of the present invention will be formed. According to this embodiment, the single piece is preferentially laminated from a carbon steel metallic plate in a step rolling.

[0020] In the step rolling, the profile of the single piece (10) is shaped and the weakened areas (11, 12) are formed by stamping, which comprise the spaced openings between each other, such that the yield stress in said weakened areas is less than the average yield stress of the drawer walls (13, 14, 15). These weakened areas (11, 12) are spaced from each other (X) in such a way as to define the width of the drawer rear wall (14).

[0021] The single piece profile can include in its lower part a U-shaped channel (16) for fixing the drawer base. Alternatively, the single piece profile includes in its upper part a rail profile (17) for fitting in the corresponding rail of a chest of drawers, as well as openings (18) to fit the grooved pulleys, requires for sliding the drawer on the rails of the chest of drawers. The profile of the walls (13, 14, 15) can be grooved to increase the drawer's resistance to torsion.

[0022] Figure 2 illustrates the drawer (20) of the present invention. As can be seen, the lateral walls (13, 15) are bent, one towards the other, at 90° in relation to the rear wall (14). The bending occurs in the weakened areas (11, 12), forming the lateral walls (13, 15) and rear wall (14).

[0023] Since the ductility of the weakened areas (11, 12) is greater than the average ductility of the drawer walls (13, 14, 15), that is, the yield stress of the weakened areas (11, 12) is less than the average yield stress of the walls (13, 14, 15), said weakened areas (11, 12) bend more easily than any other region in the walls (13, 14, 15) of the drawer (20), when a stress is applied in at least one of the lateral walls (13, 15).

[0024] The walls (13, 15) can be bent manually by an ordinary person, requiring only a substantial fastening of the rear wall (14) such that it is possible to bend the weak-

ened areas (11, 12).

[0025] Also according to the embodiment in figure 2, the lowest part of the walls (13, 14, 15) conforms to the profile of a U-shaped channel, in which the drawer base can be fixed (not shown). Orifices (19) can be provided in the U-shaped channel to receive the means of fastening, like bolts or pins, to fasten the drawer base (not shown) to the lateral (13, 15) and rear (14) walls.

[0026] Also, optionally and according to the embodiment shown in figures 2 and 3, the topmost part of the walls (13, 14, 15) also includes a profile in the form of a rail (17) to be fixed to a corresponding rail of a guide groove (21), which by its turn is fixed in a chest of drawers (not shown). According to this embodiment, the need to use a pair of rails in the drawer (20) is eliminated. The rail (17) profile can also include areas (18) provided for fixing the grooved pulleys (22), as shown in figure 3, for sliding in the guide groove (21).

[0027] The lateral walls (13, 15) can also include areas (23) provided to receive means of fastening a front wall (not shown) for the drawer.

[0028] Therefore, as can be seen by the description above, the drawer of the present invention facilitates the production and assembly of drawers because, from a single piece, one can form, with a simple bending operation, the lateral (18, 19) and rear (20) walls of a drawer, thus eliminating the need to use centralizing equipments, means of fastening like bolts, nuts, pegs or glue, and allowing for faster assembly in comparison with drawers from prior art.

[0029] One must also recognize that, although the present invention has been described in relation to its particular embodiment, those skilled in the art can develop a wider variation of structural and operational details, as well as extend the use of the above described drawer for other purposes without however deviating from the principles of the present invention. Therefore, the annexed claims should be interpreted as covering all equivalents that fit into the scope and character of the invention.

Claims

1. Drawer **characterized by** the fact that its lateral (13, 15) and rear (14) walls are formed from a single laminated piece (10) comprising at least two weakened areas (11, 12) that define the bending regions for forming said lateral (13, 15) and rear (14) walls.
2. The Drawer according to claim 1 **characterized by** the fact that said weakened areas are spaced from each other (X) and define the width of said rear wall (14) of the drawer.
3. The Drawer according to claim 1 or 2 **characterized by** the fact that said weakened areas (11, 12) are formed by creating openings spaced from each other.

er, forming a knurled area.

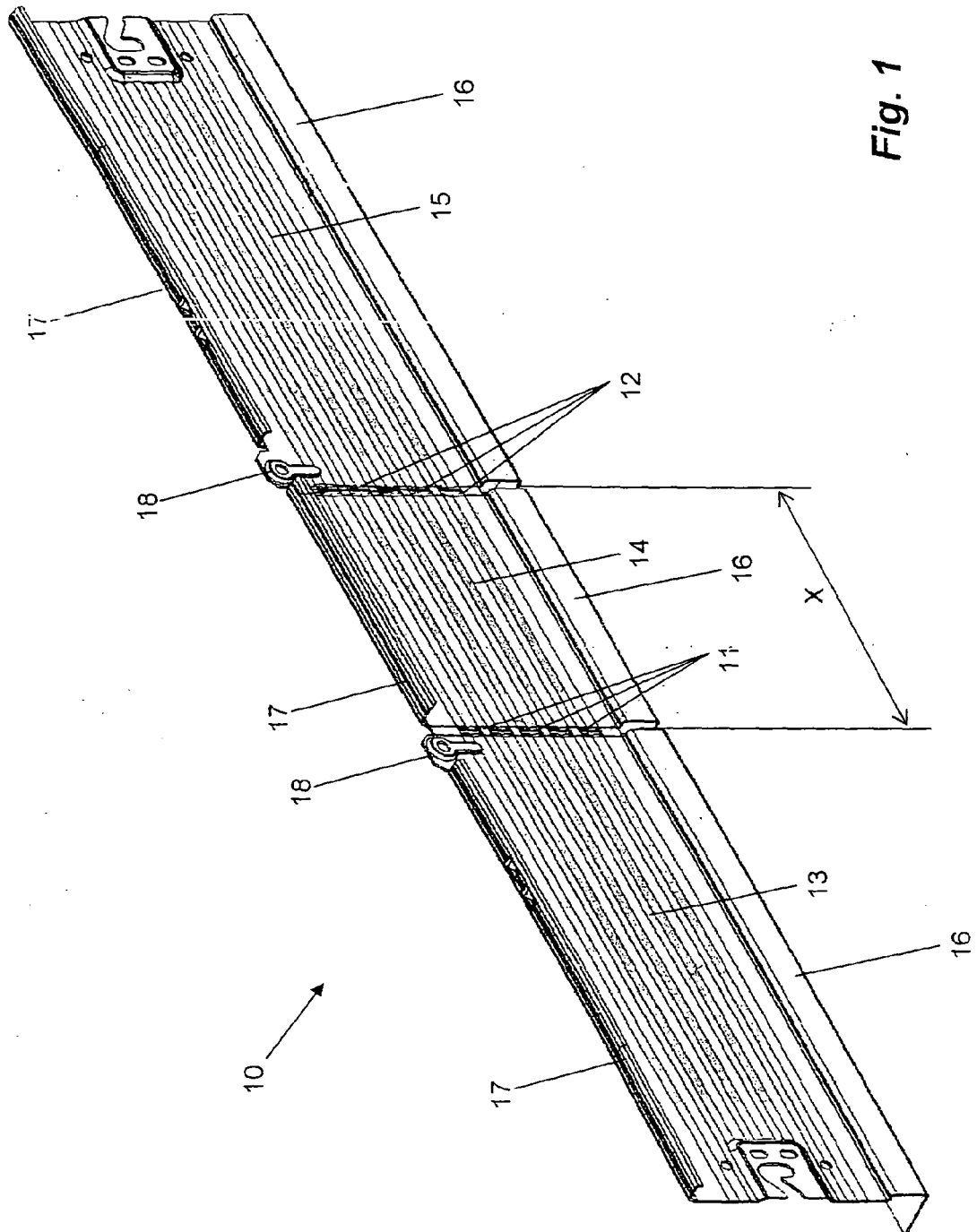
4. The Drawer according to claim 1 or 2 **characterized by** the fact that the weakened areas (11, 12) are formed by chemical attack with oxidant material or by electro-erosion. 5
5. The Drawer according to one of claims 1 to 4 **characterized by** the fact that the lowest part of said walls (13, 14, 15) includes a U-shaped channel in which the drawer base is fixed. 10
6. The Drawer according to one of claims 1 to 5 **characterized by** the fact that the upper part of the walls (13, 14, 15) conforms to a rail (17) profile and openings (18) provided to receive a grooved pulley, for fixing in a corresponding rail (21) of a chest of drawers. 15
7. The Drawer according to one of claims 1 to 6 **characterized by** the fact that said walls (13, 14, 15) conform to a grooved profile. 20
8. The Drawer according to one of claims 1 to 7 **characterized by** the fact that said lateral walls (13, 15) have additional openings (23) provided to receive means of fastening a front wall and openings (19) provided to receive means of fastening the base of said drawer. 25
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9. The Drawer according to one of claims 1 to 8 **characterized by** the fact that it is manufactured from carbon steel blank. 35

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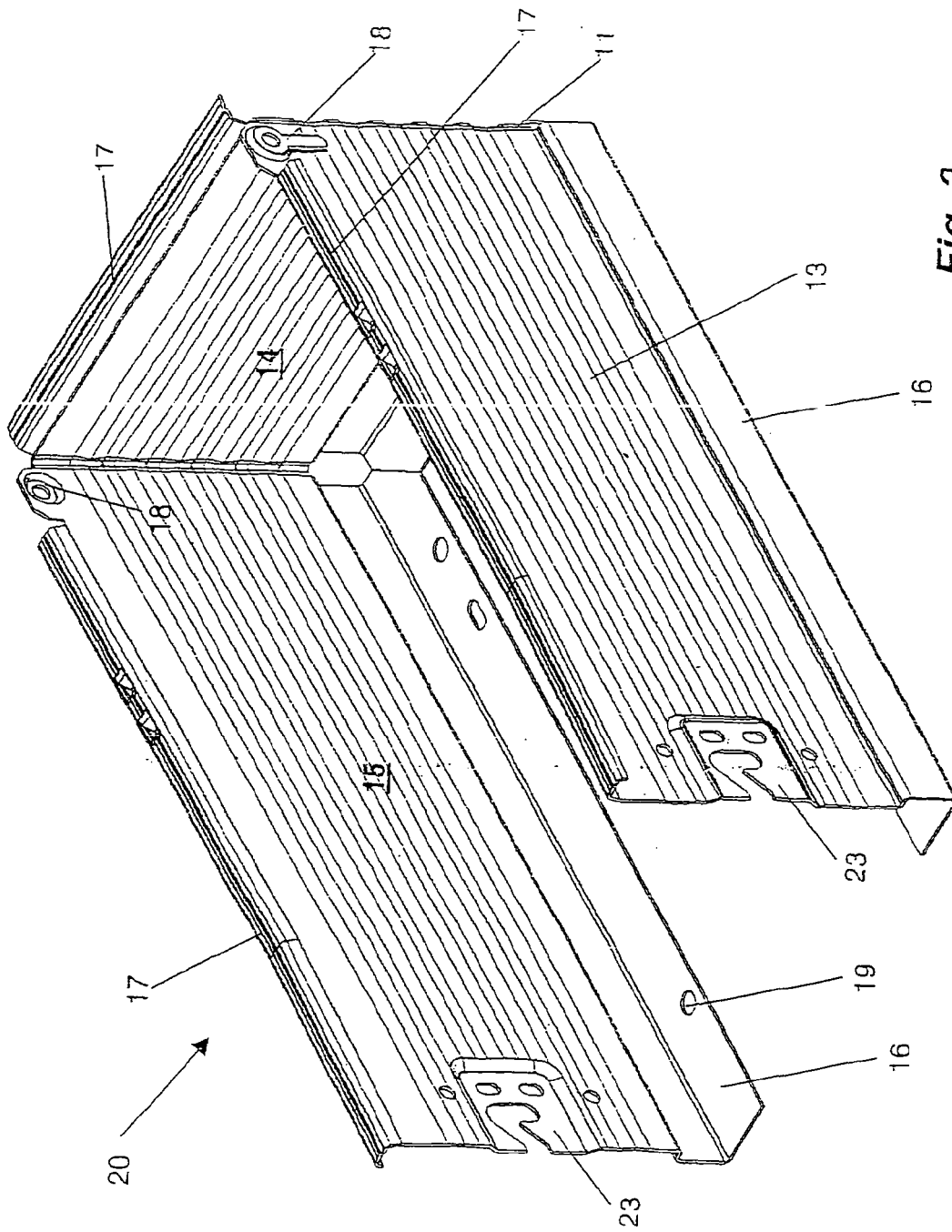


Fig. 2

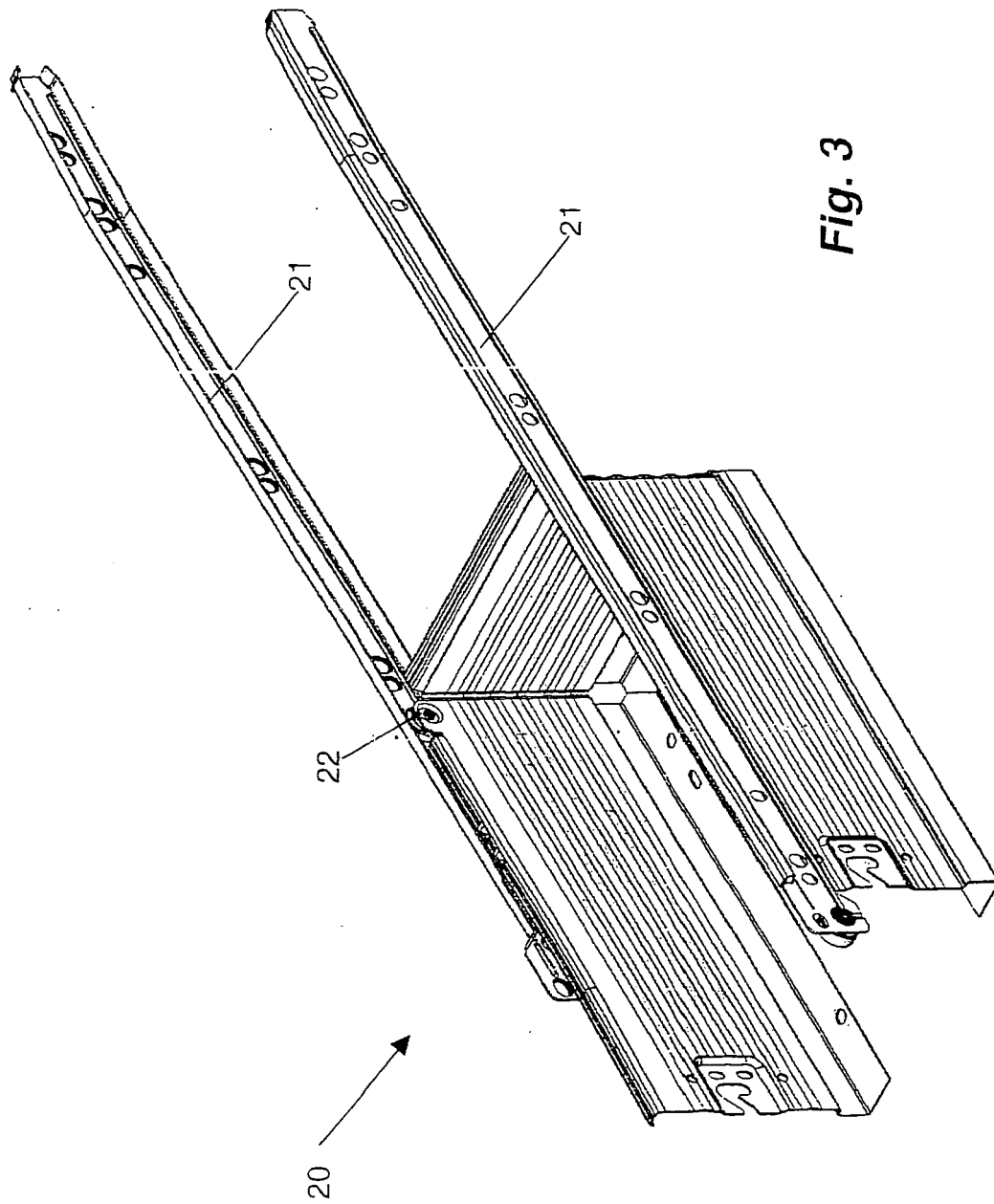


Fig. 3



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EUROPEAN SEARCH REPORT

Application Number
EP 05 29 1674

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 3 358 632 A (NEMLICH LEE S) 19 December 1967 (1967-12-19) * column 2, line 15 - line 57; figures 1-6 *	1-7	INV. A47B88/00 A47B96/20
X	----- GB 1 223 185 A (SHOCK & CO. G.M.B.H) 24 February 1971 (1971-02-24) * page 2, line 4 - line 54; figures 1,2 *	1-7	
A	----- DE 200 07 410 U1 (NINKAPLAST GMBH) 23 August 2001 (2001-08-23) * the whole document *	1-9	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47B
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
The Hague		12 May 2006	Jones, C
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

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EPO FORM 1503.03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 05 29 1674

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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12-05-2006

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US 3358632	A	19-12-1967	NONE	

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